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ABSTRACT

In an effort to examine the variables contributing to academic persistence, 1,691 St. Petersburg (Florida) Junior College (SPJC) students (960 male and 731 female) were tested two years after their initial enrollment. Ten cognitive variables and 15 non-cognitive variables were examined to determine their relationship to persistence, defined as the number of academic hours attempted over the 2-year period. Results indicate: (1) first semester grade point average was the best single predictor of persistence; (2) adding the total score of the Florida Statewide Twelfth Grade Test to the equation improved prediction for both sexes; (3) significant differences between the means of graduating and non-graduating students were found for all cognitive variables and for a variety of non-cognitive variables; and (4) a large proportion of successful (at least 2.0 GPA) students did not persist at SPJC. Recommendations include intensive counseling for freshmen during their first semester and further study on reasons for withdrawal of successful students. (Author/RG)

ACADEMIC PERSISTENCE OF SOME STUDENTS AT ST. PETERSBURG JUNIOR COLLEGE

Office of Testing Services
St. Petersburg Junior College
May, 1971
Investigator: Rose Mary Ammons

BACKGROUND

Among the criticisms leveled at studies of academic performance in Florida junior colleges is the fact that most are concerned with prediction of first semester or first year grade point averages. Studies that investigate a longer time span usually describe characteristics of graduates, but do not compare them with the non-graduating students with whom they began their college programs (Bridges, 1970).

Accordingly, the present study was designed to investigate the variables contributing to academic persistence, defined as the total number of credit hours of instruction attempted by a student at one community college within two calendar years of original enrollment. Also, descriptive data were collected separately for graduating and non-graduating students.

The group studied was the sample from the study by Clarke and Ammons (1970) and was composed of 1,691 Florida high school graduates who entered St. Petersburg Junior College in the fall of 1967. None had previously attended any college. The distribution of the sample is shown in Table I.

TABLE I

Race	Males	Percent	Females	Percent	Total	Percent
Black	37	2.2	48	2.8	85	5.0
White	923	54.6	683	40.4	1606	95.0
Total	960	56.8	731	43.2	1691	100.00

The racial composition of the sample was comparable to that of the total student population (Blacks being 3.83 percent of the total). The sex composition of the total student population by race could not be ascertained.

The original study reported evidence of the importance of a combination of affective and cognitive measures in predicting grade point averages of first semester students at St. Petersburg Junior College. The investigators, utilizing the multiple regression model, attempted to predict differentially for students subdivided according to race and sex. The amount of variance accounted for ranged from 1% for the white male subgroup to 50% for the black female subgroup. The predictor variables included five subscores and the total score of the Florida Twelfth Grade State-Wide Testing Program (FTGSTP); two subscores and the total score of the School and College Ability Test (SCAT); nine subscores of HOW I SEE MYSELF (HISM), a self-concept inventory (Gordon, 1968); total score of the SOCIAL REACTION INVENTORY (SRI), a "locus of control" index (Rotter, 1966); six sub-scores of the ALLPORT-VERNON-LINDZEY STUDY OF VALUES.

PROCEDURE

At the end of two calendar years (six sessions, including 2 summers) the academic records of each student in the original study were examined and the following data were collected for each case:

1. total number of credit hours attempted

2. accumulated grade point average

3. degree status (graduated/not graduated)

An attempt was made to retrieve socioeconomic data collected with the Board of Regents' Junior College Questionnaire prior to each student's enrollment, but that information had been destroyed immediately after tabulation in 1967.

Tabulations were made of the distribution of grade point averages of the total sample according to the number of credit hours of instruction attempted (not necessarily successfully). The sample was then divided on the basis of sex, but, because of the number of Black students, the racial groups were combined.

Using EEL570 of the Education Evaluation Library, University of Florida, stepwise multiple regression analysis was performed separately for each sex group to ascertain the best combination and weighting of predictors for determining persistence, defined as the total number of credit hours attempted over the two year period. Analysis was performed twice for each subgroup, once with the first semester grade point average, originally the criterion, added to the predictor variables. The Social Reaction Inventory score was deleted from the analysis.

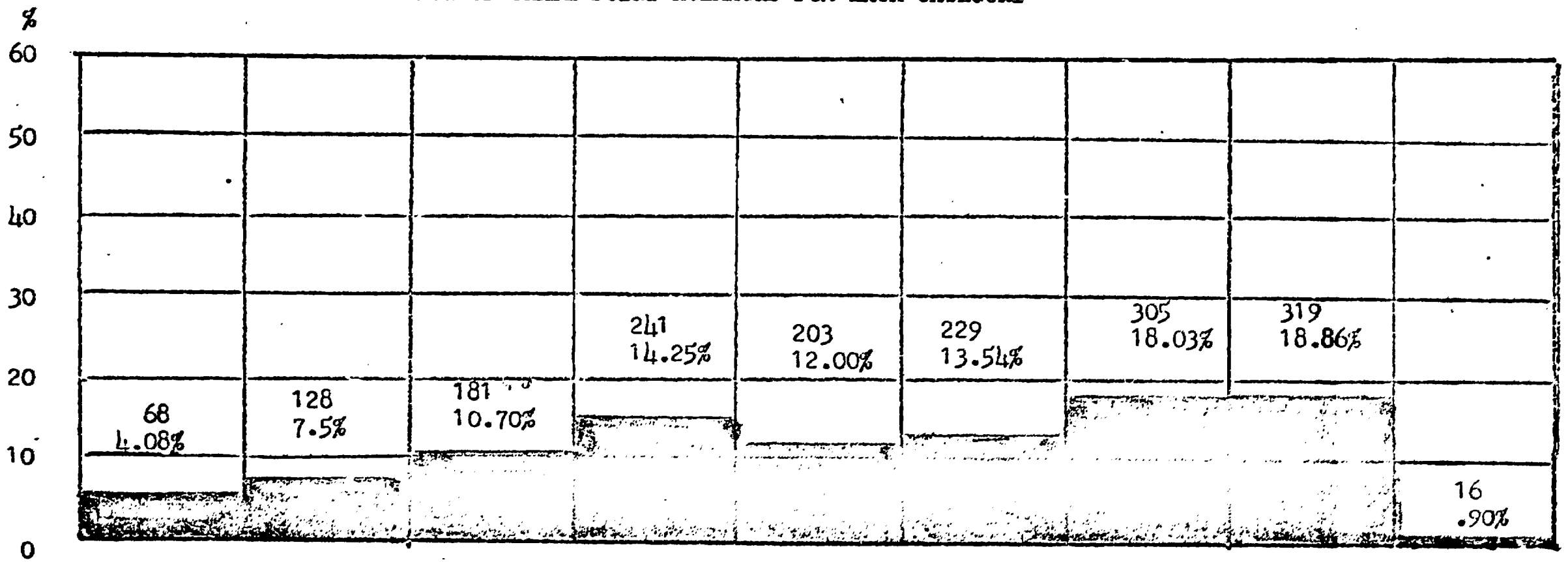
Additionally, each of the two subgroups was divided according to degree status (graduated from SPJC/not graduated), and $\overline{Z}$ tests were performed to investigate differences between means of graduates and non-graduates for each variable.

RESULTS

The distribution of credit hours attempted by the total sample is shown in Figure I, Page 4. Also shown are the distributions of grade

FIGURE I

TOTAL CREDIT HOURS ATTEMPTED OVER A TWO YEAR PERIOD BY 1691 STUDENTS* WHO ENTERED SPJC IN FALL '67
WITH DISTRIBUTION OF GRADE POINT AVERAGES FOR EACH CATEGORY



* Students were "first-time-in-college" Florida High School Graduates

point averages in each category. Inspection of that figure indicates that after two years only 18.86 percent of the total sample had attempted the number of credit hours considered to be "normal" (60 hours) for that time period. Almost 10 percent of those cases did not have a grade point average high enough to meet graduation requirements (2.00).

Figure I also shows that each "hours attempted" category except the last one included some "successful" and some "unsuccessful" students, success being defined as a grade point average of 2.00 or higher. The ratio of successful to unsuccessful cases remains relatively constant through the first three categories, the balance being heavily in the direction of the unsuccessful cases. Categories 30-39 and 40-49 show a predominance of unsuccessful cases, but the ratio is more closely balanced than in preceding categories. It should be noted that the 40-49 category is the only one showing an increase in the proportion of unsuccessful students over a preceding category.

The last three categories show a reversal of the pattern of the earlier categories, the ratio being heavily in the direction of the successful cases.

Means of all variables are presented for both sexes in Table II. Differences significant at the .01 level of confidence, based on $\bar{Z}$ tests between means of graduated and non-graduated subgroups, were found for both sexes on: total g.p.a.; first semester g.p.a.; all nine cognitive scores; "How I See Myself" subscores for Teacher-School, Autonomy, Academic Adequacy, and Boy Social. For females, additional differences at the .05

TABLE II

MEANS OF ALL VARIABLES

VARIABLE		MALES GRADUATED N=145	MALES NOT GRADUATED N=815	Z	FEMALES GRADUATED N=152	FEMALES NOT GRADUATED N=578	Z	TOTAL N=1690
TOT.GPA	1	2.626	1.580	21.34**	2.798	1.899	17.97**	1.888
1stSem.GPA	2	2.488	1.556	15.99**	2.631	1.827	13.05**	1.825
12thGr.APT.	3	65.979	49.333	6.84**	64.434	48.235	6.36**	51.744
ENG.	4	55.689	41.777	5.54**	67.500	50.352	6.83**	48.217
SOC.SC.	5	67.579	50.782	6.58**	58.368	45.565	4.86**	51.121
NAT.SC.	6	72.889	55.709	6.55**	59.013	44.059	5.74**	58.499
MATH	7	73.344	55.117	7.61**	65.434	48.032	6.96**	55.186
12thGr.Tot.	8	335.427	252.607	7.41**	313.473	235.816	6.63**	259.444
SCAT V.	9	301.634	292.255	8.59**	299.578	293.158	5.93**	294.027
Q.	10	311.682	300.493	8.92**	306.401	296.840	7.46**	300.735
T.	11	305.717	298.064	8.20**	302.473	294.944	7.73**	297.086
HISM TS	12	27.593	26.742	2.82**	28.539	27.100	4.63**	26.617
Phy.Ap.	13	26.365	26.732	.71	26.618	26.377	.44	28.569
Int.Ad.	14	45.696	44.507	1.67	45.763	44.062	2.25*	44.570
Auton.	15	34.841	33.473	2.84**	35.243	33.420	3.73**	33.731
ACAD.AQ.	16	15.917	14.717	3.54**	16.572	14.979	4.69**	15.076
Phy.Adq.	17	15.144	14.739	1.57	15.197	14.698	1.97*	14.801
Emot.	18	9.351	9.155	.66	8.631	8.129	1.68	8.774
Girl So.	19	13.496	13.035	1.76	14.026	13.609	1.51	13.360
Boy So.	20	23.241	21.954	4.92**	24.802	23.989	3.30**	23.017
AVL T	21	42.662	42.755	.15	36.138	37.505	-2.17*	40.356
E	22	41.737	42.276	.75	38.105	37.930	.26	40.368
A	23	34.675	34.733	.07	38.723	37.762	1.35	36.123
S	24	36.089	35.954	.22	41.085	41.326	.33	38.265
P	25	42.641	42.797	.21	37.789	38.328	.90	40.805
R	26	39.096	37.530	1.97*	45.085	43.380	2.19*	40.344

** Sig. at .01
* Sig. at .05

TABLE III

STANDARD DEVIATIONS OF ALL VARIABLES

VARIABLE		GRADUATED N=145	NOT GRADUATED N=815	GRADUATED N=152	NOT GRADUATED N=578
TOT.GPA	1	0.50029	0.78074	0.45837	0.81350
1stSem.GPA	2	0.59577	0.85004	0.61503	0.87257
12thGr.Apt.	3	26.63165	28.53912	27.48689	29.24744
Eng.	4	27.82451	27.46346	26.87273	29.46136
S.S.	5	28.07518	28.90355	28.80321	28.75685
N.S.	6	26.86362	29.79396	28.61963	28.00252
Math	7	26.10037	28.53410	26.76450	29.43151
12thGr.Tot.	8	122.57063	129.41557	127.20064	131.18547
SCAT V.	9	10.56048	18.41121	11.36536	13.45775
Q.	10	12.80604	18.77980	13.59157	15.54244
T.	11	8.99741	15.78480	10.25753	12.05129
HISM TS	12	3.30296	3.52090	3.[illegible]2136	3.67332
Phy.Ap.	13	5.63322	5.79781	5.92434	6.00734
Int.Ad.	14	7.86099	7.93092	8.20161	8.51899
Auton.	15	5.32638	5.27521	5 29898	5.53044
Acad.Aq.	16	3.76473	3.65397	3.[illegible]030	3.63823
Phy.Adq.	17	2.85767	2.81586	2.73324	2.90443
Emot.	18	3.26710	3.41090	3.22383	3.40833
Girl So.	19	2.84096	3.11199	2.99876	3.12450
Boy So.	20	2.90658	2.81465	2.61942	2.95012
AVL T	21	6.98029	6.83493	6.85419	7.05555
E	22	7.99735	7.52746	7.46920	6.44834
A	23	9.20882	7.96797	7.81162	7.53037
S	24	6.67901	7.15104	7.91751	7.52169
P	25	6.37446	6.38951	6.58874	6.33196
R	26	10.00303	8.97605	8.45702	8.70936

level of significance were found for: "How I See Myself" scores on Interpersonal Adequacy and Physical Adequacy; "Study of Values" scores on Theoretical (higher mean for non-graduates) and Religion.

Results of stepwise multiple regression analysis for prediction of persistence (defined as the number of academic credit hours attempted) are presented in Tables IV through VII. Results are shown only for the analysis which included first semester g.p.a. For males, three predictive variables contributed significantly to the effectiveness of the equation, accounting for 39 percent of the variance (Table IV). Those variables, shown in Table VI, included the first semester g.p.a., the total score of the FTGSTP, and the Teacher-School Score of HISM. For females, two variables, first semester g.p.a and FTGSTP, accounted for 33.5 percent of the variance. The addition of other variables did not increase prediction significantly (Guilford, 1965, p. 403).

Multiple regression analysis in which the first semester g.p.a. was not included in the predictor variables accounted for 12.81 percent of the variance for the male subgroup and 15.17 percent of the variance for the female subgroup.

DISCUSSION

The strength of first semester g.p.a. in predicting academic persistence points again to the critical aspects of early college experiences. Since there is evidence that non-cognitive variables influence that item significantly (Clarke and Ammons, 1970), it appears important that adequate provisions be made for personal and vocational counseling of freshmen as well as for providing

TABLE IV

MALES N=959

Prediction Equation: Total Number of Credit Hours Attempted

Multiple R .6262

Standard Error of Estimate 15.5716

VARIABLE	COEFFICIENT
1st Sem. GPA (1)	13.03766
12th Grade Tot. (8)	.01360
HISM Teach.Sch. (12)	.31281
Constant	4.30138

TABLE V

MULTIPLE REGRESSION SUMMARY TABLES: MALES

CRITERION= TOTAL NUMBER OF CREDIT HOURS ATTEMPTED

STEP	VARIABLE		R	RSQ	F to Remove
1	1st Sem.GPA	(1)	.6175	.3813	590.489 **
2	12th Gr. Test Tot.	(8)	.6238	.3891	12.243 **
3	HISM Teach Sch.	(12)	.6262	.3921	4.634 *
4	HISM Phy.App.	(13)	.6275	.3937	2.540
5	AVL A	(23)	.6283	.3947	1.747
6	AVL R	(26)	.6294	.3961	2.1829
7	AVL E	(22)	.6305	.3975	2.1030
8	Nat.Sci.	(6)	.6312	.3984	1.3355
9	HISM Phy.Adq.	(17)	.6316	.3989	.7840
10	Soc.Sc.	(5)	.6318	.3991	.4707
11	AVL S	(24)	.6320	.3994	.4404
12	SCAT T	(11)	.6322	.3996	.3930
13	SCAT V	(9)	.6337	.4015	2.8887
14	SCAT M	(10)	.6339	.4018	.5598
15	AVL T	(21)	.6341	.4020	.3569
16	HISM Emot.	(18)	.6343	.4023	.3158
17	12th Gr. Apt.	(3)	.6344	.4024	.2526
18	12th Gr. Eng.	(4)	.6347	.4028	.5090
19	12th Gr. Math	(7)	.6353	.4036	1.2048
20	HISM Auton.	(15)	.6354	.4037	.2392
21	HISM Girl Soc.	(19)	.6355	.4038	.1419
22	HISM Acad. Adq.	(16)	.6355	.4038	.0845
23	HISM Inter.Ad.	(14)	.6355	.4038	.0622
24	HISM Boy Soc.	(20)	.6356	.4039	.0430

N=959

** Increase Sig. at .01
* Increase Sig. at .05

TABLE VI

FEMALES N=730

Prediction Equation: Total Number of Credit Hrs. Attempted

Multiple R .5791

Standard Error of Estimate 17.0598

VARIABLE	COEFFICIENT
1st Sem.GPA (2)	12.39246
12th Gr.Tot. (8)	.01675
Constant	9.40159

TABLE VII

MULTIPLE REGRESSION SUMMARY TABLE: FEMALES

CRITERION= TOTAL NUMBER OF CREDIT HOURS ATTEMPTED

STEP	VARIABLE		R	RSQ	F to Remove
1	1st Sem.GPA	(2)	.5708	.3258	351.8811 **
2	12th Gr.Tot.	(8)	.5791	.3353	10.4574 **
3	AVL T	(2_)	.5820	.3387	3.6558
4	Phy.Adq.	(17)	.5850	.3422	3.7765
5	Girl Soc.	(19)	.5871	.3446	2.7493
6	HISM Teach.Sch	(12)	.5908	.3490	4.8470
7	SCAT M	(10)	.5929	.3515	2.7661
8	Boy Soc.	(20)	.5937	.3524	1.0933
9	AVL S	(24)	.5945	.3534	1.0389
10	AVL R	(26)	.5951	.3541	0.7957
11	AVL P	(25)	.5958	.3549	0.9878
12	Emot.	(18)	.5964	.3557	.7558
13	12th Gr.Math	(7)	.5968	.3561	.5326
14	Auton.	(15)	.5971	.3565	.4333
15	12thGr. Soc.	(5)	.5974	.3568	.2959
16	AVL E	(22)	.5975	.3570	.2194
17	AVL A	(23)	.5977	.3572	.1724
18	Phy.App.	(13)	.5978	.3573	.1488
19	SCAT T	(11)	.5979	.3574	.1282
20	12th Gr.Eng.	(4)	.5979	.3574	.1113
21	ACAD.AQ.	(16)	.5980	.3576	.0838
22	SCAT V.	(9)	.5980	.3576	.0365

F Level insufficient for further calculation

** Increase sig at .01

them with academic advisement and skills development. The importance of the first semester g.p.a. also implies that greater returns might accrue from concentrating counseling efforts on first semester students if budgetary or administrative factors require that a priority for services be established.

Further investigation should be undertaken to determine the reasons for non-persistence of academically successful students, as indicated in Figure 1. Local college records document the fact that many students transfer to other institutions prior to receiving the associates degree. From that standpoint, such cases might well be considered as a separate subgroup from the "non-persisting" students. That is to say, it might be meaningful to redefine persistence as continued enrollment in college, whether it be the original institution or one to which the student has transferred. Using that definition, subsequent studies might explore differences between successful persisters and non-persisters.

Another facet worthy of further study is the relatively small percentage of students attempting the supposedly normal (60 hours) academic load over the two year period. It has been assumed by junior college specialists that a significant number of junior college students spread the two year course of study over a longer period of time. It is recommended that data from the group in the present study be examined for any patterns of time span allotted to the accrual of the sixty academic hours.

ABSTRACT

Records of 960 male students and 731 female students who entered St. Petersburg Junior College in the Fall, 1967, were examined two years after their enrollment. All members of the group, originally studied by Clarke and Ammons (1970), were graduates of Florida high schools and had not previously attended any college.

Ten cognitive variables and 15 non-cognitive variables were examined to determine their relationship to persistence, defined as the number of academic hours attempted over the two year period. Additionally, significance of differences were determined between means of graduating and non-graduating students for all variables.

First semester grade point average showed the greatest relationship of any single variable in predicting persistence. Prediction was improved for both sexes by adding total score of the Florida Statewide Twelfth Grade Testing program to the equation. For males, the addition of one self-concept score further enhanced prediction.

Significant differences between the means of graduating and non-graduating students were found for all cognitive variables and for a variety of non-cognitive variables.

Examination of the data showed that a large proportion of successful (at least 2.00 g.p.a.) students did not persist at S.P.J.C.

Recommendations were made that intensive counseling be made available to freshman, especially in their first semester of attendance. Also, further study was recommended to determine reasons for withdrawal of successful students.

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